



SEQUENCE LISTING

<110> Osteryoung, Katherine W.

<120> Manipulation of Min Genes in Plants

<130> 920905.90041

<140>

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<150> 60/130,403

<151> 1999-04-19

<160> 12

<170> PatentIn Ver. 2.1

<210> 1

<211> 978

<212> DNA

<213> Prototheca wickerhamii

<220>

<221> CDS

<222> (1)..(978)

<400> 1

atg gcg tct ctg aga ttg ttc tca acg aat cat caa tct ctt ctc ctt 48

Met Ala Ser Leu Arg Leu Phe Ser Thr Asn His Gln Ser Leu Leu Leu

1 5 10 15

cca tca tct ctc tca caa aag act cta ata tct tca cca aga ttc gtc 96

Pro Ser Ser Leu Ser Gln Lys Thr Leu Ile Ser Ser Pro Arg Phe Val

20 25 30

aat aac cct agc aga cgg agt cca ata cga tcc gtt ctt caa ttt aat 144

Asn Asn Pro Ser Arg Arg Ser Pro Ile Arg Ser Val Leu Gln Phe Asn

35 40 45

cgc aaa ccg gaa ctc gcc gga gaa acg ccg cgt atc gtc gtt atc acc 192
Arg Lys Pro Glu Leu Ala Gly Glu Thr Pro Arg Ile Val Val Ile Thr
50 55 60

tcc gga aaa ggc ggt gtt gga aag acg aca acc acc gca aat gtc ggt 240
Ser Gly Lys Gly Gly Val Gly Lys Thr Thr Thr Thr Ala Asn Val Gly
65 70 75 80

ctc tct ctc gct cgt tac ggt ttc tca gtt gtc gcc att gac gcc gac 288
Leu Ser Leu Ala Arg Tyr Gly Phe Ser Val Val Ala Ile Asp Ala Asp
85 90 95

ctt ggt ctc cgt aac ctc gat ctc ctc cta ggg tta gag aat cga gtc 336
Leu Gly Leu Arg Asn Leu Asp Leu Leu Leu Gly Leu Glu Asn Arg Val
100 105 110

aat tac act tgc gtc gag gtt ata aac gga gat tgt cgt ctc gat caa 384
Asn Tyr Thr Cys Val Glu Val Ile Asn Gly Asp Cys Arg Leu Asp Gln
115 120 125

gct ctg gta cgt gat aag cgt tgg tcg aat ttc gaa ttg cta tgt ata 432
Ala Leu Val Arg Asp Lys Arg Trp Ser Asn Phe Glu Leu Leu Cys Ile
130 135 140

tct aaa cct aga tcg aaa ctt ccg atg gga ttt ggt ggt aaa gca ttg 480
Ser Lys Pro Arg Ser Lys Leu Pro Met Gly Phe Gly Gly Lys Ala Leu
145 150 155 160

gaa tgg ctt gtg gat gcg ttg aaa act aga ccg gaa ggt tca ccg gat 528
Glu Trp Leu Val Asp Ala Leu Lys Thr Arg Pro Glu Gly Ser Pro Asp
165 170 175

ttc atc atc atc gat tgt cct gca gga atc gat gcc gga ttc ata acc 576
Phe Ile Ile Ile Asp Cys Pro Ala Gly Ile Asp Ala Gly Phe Ile Thr
180 185 190

gcc att act ccg gcg aat gaa gca gtt ctg gta aca act ccg gat ata 624
Ala Ile Thr Pro Ala Asn Glu Ala Val Leu Val Thr Thr Pro Asp Ile
195 200 205

aca gcg tta agg gat gct gat agg gtt acg ggt ttg tta gaa tgc gat 672
Thr Ala Leu Arg Asp Ala Asp Arg Val Thr Gly Leu Leu Glu Cys Asp
210 215 220

gga atc aga gat ata aag atg att gtg aac aga gtg aga act gat atg 720
Gly Ile Arg Asp Ile Lys Met Ile Val Asn Arg Val Arg Thr Asp Met
225 230 235 240

att aaa gga gag gat atg atg tca gtg tta gat gtg cag gag atg ttg 768
Ile Lys Gly Glu Asp Met Met Ser Val Leu Asp Val Gln Glu Met Leu
245 250 255

gga ttg tca ttg ctt ggt gta att cct gaa gat tct gag gtt att cga 816
Gly Leu Ser Leu Leu Gly Val Ile Pro Glu Asp Ser Glu Val Ile Arg
260 265 270

agc acg aat cga ggg ttt ccg ctt gtt ctg aat aag cct cct acg ctt 864
Ser Thr Asn Arg Gly Phe Pro Leu Val Leu Asn Lys Pro Pro Thr Leu
275 280 285

gcg gga ttg gcg ttt gag cag gcg gct tgg aga ctc gtt gag caa gat 912
Ala Gly Leu Ala Phe Glu Gln Ala Ala Trp Arg Leu Val Glu Gln Asp
290 295 300

agt atg aag gct gtt atg gtg gag gaa gaa cct aag aaa cgt ggc ttc 960
Ser Met Lys Ala Val Met Val Glu Glu Glu Pro Lys Lys Arg Gly Phe
305 310 315 320

ttc tct ttc ttt ggc ggc 978
Phe Ser Phe Phe Gly Gly
325

<210> 2

<211> 326

<212> PRT

<213> Prototheca wickerhamii

<400> 2

Met Ala Ser Leu Arg Leu Phe Ser Thr Asn His Gln Ser Leu Leu Leu

1 5 10 15

Pro Ser Ser Leu Ser Gln Lys Thr Leu Ile Ser Ser Pro Arg Phe Val

20 25 30

Asn Asn Pro Ser Arg Arg Ser Pro Ile Arg Ser Val Leu Gln Phe Asn

35 40 45

Arg Lys Pro Glu Leu Ala Gly Glu Thr Pro Arg Ile Val Val Ile Thr

50 55 60

Ser Gly Lys Gly Gly Val Gly Lys Thr Thr Thr Thr Ala Asn Val Gly

65 70 75 80

Leu Ser Leu Ala Arg Tyr Gly Phe Ser Val Val Ala Ile Asp Ala Asp

85 90 95

Leu Gly Leu Arg Asn Leu Asp Leu Leu Leu Gly Leu Glu Asn Arg Val

100 105 110

Asn Tyr Thr Cys Val Glu Val Ile Asn Gly Asp Cys Arg Leu Asp Gln

115 120 125

Ala Leu Val Arg Asp Lys Arg Trp Ser Asn Phe Glu Leu Leu Cys Ile

130 135 140

Ser Lys Pro Arg Ser Lys Leu Pro Met Gly Phe Gly Gly Lys Ala Leu

145 150 155 160

Glu Trp Leu Val Asp Ala Leu Lys Thr Arg Pro Glu Gly Ser Pro Asp

165 170 175

Phe Ile Ile Ile Asp Cys Pro Ala Gly Ile Asp Ala Gly Phe Ile Thr

180 185 190

Ala Ile Thr Pro Ala Asn Glu Ala Val Leu Val Thr Thr Pro Asp Ile

195 200 205

Thr Ala Leu Arg Asp Ala Asp Arg Val Thr Gly Leu Leu Glu Cys Asp

210 215 220

Gly Ile Arg Asp Ile Lys Met Ile Val Asn Arg Val Arg Thr Asp Met
225 230 235 240

Ile Lys Gly Glu Asp Met Met Ser Val Leu Asp Val Gln Glu Met Leu
 245 250 255

Gly Leu Ser Leu Leu Gly Val Ile Pro Glu Asp Ser Glu Val Ile Arg
 260 265 270

Ser Thr Asn Arg Gly Phe Pro Leu Val Leu Asn Lys Pro Pro Thr Leu
 275 280 285

Ala Gly Leu Ala Phe Glu Gln Ala Ala Trp Arg Leu Val Glu Gln Asp
 290 295 300

Ser Met Lys Ala Val Met Val Glu Glu Glu Pro Lys Lys Arg Gly Phe
305 310 315 320

Phe Ser Phe Phe Gly Gly
 325

<210> 3

<211> 1182

<212> DNA

<213> Tagetes erecta

<220>

<221> CDS

<222> (50)..(934)

<400> 3

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Met Thr Ser

1

ctg agg ttt cta aca gaa ccc tca ctt gta tgc tca tcc act ttc ccc 106

Leu Arg Phe Leu Thr Glu Pro Ser Leu Val Cys Ser Ser Thr Phe Pro

5 10 15

aca ttc aat ccc cta cac aaa acc cta act aaa cca aca cca aaa ccc 154

Thr Phe Asn Pro Leu His Lys Thr Leu Thr Lys Pro Thr Pro Lys Pro

20 25 30 35

tac cca aag cca cca cca att cgc tcc gtc ctt caa tac aat cgc aaa 202

Tyr Pro Lys Pro Pro Pro Ile Arg Ser Val Leu Gln Tyr Asn Arg Lys

40 45 50

cca gag ctc gcc gga gac act cca cga gtc gtc gca atc gac gcc gac 250

Pro Glu Leu Ala Gly Asp Thr Pro Arg Val Val Ala Ile Asp Ala Asp

55 60 65

gtt ggt cta cgt aac ctc gat ctt ctt ctc ggt ctc gaa aac cgc gtc 298

Val Gly Leu Arg Asn Leu Asp Leu Leu Leu Gly Leu Glu Asn Arg Val

70 75 80

aat tac acc gtc gtt gaa gtt ctc aac ggc gat tgc aga ctc gac caa 346

Asn Tyr Thr Val Val Glu Val Leu Asn Gly Asp Cys Arg Leu Asp Gln

85 90 95

gcc cta gtt cgt gat aaa cgc tgg tca aat ttc gaa ttg ctt tgt att 394

Ala Leu Val Arg Asp Lys Arg Trp Ser Asn Phe Glu Leu Leu Cys Ile

100 105 110 115

tca aaa cct agg tca aaa ttg cct tta gga ttt ggg gga aaa gct tta 442

Ser Lys Pro Arg Ser Lys Leu Pro Leu Gly Phe Gly Gly Lys Ala Leu

120 125 130

gtt tgg ctt gat gca tta aaa gat agg caa gaa ggt tgc ccg gat ttt 490

Val Trp Leu Asp Ala Leu Lys Asp Arg Gln Glu Gly Cys Pro Asp Phe

135 140 145

ata ctt ata gat tgt cct gca ggt att gat gcc ggg ttc ata acc gcc 538

Ile Leu Ile Asp Cys Pro Ala Gly Ile Asp Ala Gly Phe Ile Thr Ala

150 155 160

att aca ccg gct aac gaa gcc gta tta gtt aca aca cct gat att act 586

Ile Thr Pro Ala Asn Glu Ala Val Leu Val Thr Thr Pro Asp Ile Thr

165	170	175	
gca ttg aga gat gca gat aga gtt aca ggc ttg ctt gaa tgt gat gga 634			
Ala Leu Arg Asp Ala Asp Arg Val Thr Gly Leu Leu Glu Cys Asp Gly			
180	185	190	195
att agg gat att aaa atg att gtg aac aga gtt aga act gat ttg ata 682			
Ile Arg Asp Ile Lys Met Ile Val Asn Arg Val Arg Thr Asp Leu Ile			
200	205	210	
agg ggt gaa gat atg atg tca gtt ctt gat gtt caa gag atg ttg gga 730			
Arg Gly Glu Asp Met Met Ser Val Leu Asp Val Gln Glu Met Leu Gly			
215	220	225	
ttg tca ttg ttg agt gat acc cga gga ttc gaa gtg att cgg agt acg 778			
Leu Ser Leu Leu Ser Asp Thr Arg Gly Phe Glu Val Ile Arg Ser Thr			
230	235	240	
aat aga ggg ttt ccg ctt gtg ttg aac aag cct ccg act tta gca gga 826			
Asn Arg Gly Phe Pro Leu Val Leu Asn Lys Pro Pro Thr Leu Ala Gly			
245	250	255	
ttg gca ttt gag cag gct gct tgg aga ttg gtt gag caa gat agc atg 874			
Leu Ala Phe Glu Gln Ala Ala Trp Arg Leu Val Glu Gln Asp Ser Met			
260	265	270	275
aag gct gtg atg gtg gag gaa gaa cct aaa aag agg gga ttt ttc tcg 922			
Lys Ala Val Met Val Glu Glu Glu Pro Lys Lys Arg Gly Phe Phe Ser			
280	285	290	
ttt ttt gga ggt tagtgatcga attcgttgaa tcgttgagtt gggtttgtt 974			
Phe Phe Gly Gly			
295			
tggtggagaa atgtgtcttg ttgttcacg taggagctgc tatgtgtcac tgaaatgtt 1034			
atgtgtacag taagctgata aggattgtt taattcagtt tcagagaga aaattagaat 1094			
tgtagcaact ttccattga tcaattcaat tgtattctt tgggtcagtg atgaatttt 1154			

actcaaaatc aaaaaaaaaa aaaaaaaaa

1182

<210> 4

<211> 295

<212> PRT

<213> Tagetes erecta

<400> 4

Met Thr Ser Leu Arg Phe Leu Thr Glu Pro Ser Leu Val Cys Ser Ser

1 5 10 15

Thr Phe Pro Thr Phe Asn Pro Leu His Lys Thr Leu Thr Lys Pro Thr

20 25 30

Pro Lys Pro Tyr Pro Lys Pro Pro Pro Ile Arg Ser Val Leu Gln Tyr

35 40 45

Asn Arg Lys Pro Glu Leu Ala Gly Asp Thr Pro Arg Val Val Ala Ile

50 55 60

Asp Ala Asp Val Gly Leu Arg Asn Leu Asp Leu Leu Leu Gly Leu Glu

65 70 75 80

Asn Arg Val Asn Tyr Thr Val Val Glu Val Leu Asn Gly Asp Cys Arg

85 90 95

Leu Asp Gln Ala Leu Val Arg Asp Lys Arg Trp Ser Asn Phe Glu Leu

100 105 110

Leu Cys Ile Ser Lys Pro Arg Ser Lys Leu Pro Leu Gly Phe Gly Gly

115 120 125

Lys Ala Leu Val Trp Leu Asp Ala Leu Lys Asp Arg Gln Glu Gly Cys

130 135 140

Pro Asp Phe Ile Leu Ile Asp Cys Pro Ala Gly Ile Asp Ala Gly Phe

145 150 155 160

Ile Thr Ala Ile Thr Pro Ala Asn Glu Ala Val Leu Val Thr Thr Pro

165	170	175
Asp Ile Thr Ala Leu Arg Asp Ala Asp Arg Val Thr Gly Leu Leu Glu		
180	185	190
Cys Asp Gly Ile Arg Asp Ile Lys Met Ile Val Asn Arg Val Arg Thr		
195	200	205
Asp Leu Ile Arg Gly Glu Asp Met Met Ser Val Leu Asp Val Gln Glu		
210	215	220
Met Leu Gly Leu Ser Leu Leu Ser Asp Thr Arg Gly Phe Glu Val Ile		
225	230	235
Arg Ser Thr Asn Arg Gly Phe Pro Leu Val Leu Asn Lys Pro Pro Thr		
245	250	255
Leu Ala Gly Leu Ala Phe Glu Gln Ala Ala Trp Arg Leu Val Glu Gln		
260	265	270
Asp Ser Met Lys Ala Val Met Val Glu Glu Glu Pro Lys Lys Arg Gly		
275	280	285
Phe Phe Ser Phe Phe Gly Gly		
290	295	

<210> 5

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(30)

<220>

<223> Description of Artificial Sequence: pcr primer

<400> 5

ccgaattcga agcagcagca ctatcaatgg

30

<210> 6

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 6

cggaattcga tccgttgcc atttagcc

28

<210> 7

<211> 359

<212> PRT

<213> Prototheca wickerhamii

<400> 7

Met Asn Lys Leu His Tyr Phe Ile Asn Asn Ile Phe Asn Leu Ile Val

1 5 10 15

Tyr Tyr Leu Tyr Ser Leu Tyr Phe Lys Glu Asp Lys Ile Lys Arg Arg

20 25 30

Leu Ser Asn Met Thr Lys Lys Gln Glu Asn Tyr Asn Lys Glu Gln Leu

35 40 45

Ile Lys Glu Lys Pro Glu Glu Arg Lys Ile Ile Lys Glu Gln Leu Glu

50 55 60

Gln Leu Ile Gln Lys Pro Ser Glu Ser Glu Tyr Asn Thr Glu Leu Asp

65 70 75 80

Ile Glu Leu Asp Lys Gly Asp Ser Asp Glu Leu Glu Pro Arg Val Ile

85 90 95

Val Ile Thr Ser Gly Lys Gly Gly Val Gly Lys Thr Thr Thr Thr Ala
100 105 110

Asn Leu Gly Met Ser Ile Ala Arg Phe Gly Tyr Arg Val Ala Leu Ile
115 120 125

Asp Ala Asp Ile Gly Leu Arg Asn Leu Asp Leu Leu Leu Gly Leu Glu
130 135 140

Asn Arg Ile Thr Phe Thr Ala Met Asp Ile Ile Glu Gly Arg Cys Arg
145 150 155 160

Leu Asp Gln Ala Leu Val Arg Glu Lys Arg Trp Lys Asn Leu Ala Leu
165 170 175

Leu Ala Val Ser Lys Asn His Gln Lys Tyr Asn Val Thr Gln Gln His
180 185 190

Met Arg Gln Leu Val Phe Ser Ile Lys Glu Leu Gly Ile Asn Ser Ile
195 200 205

Leu Ile Asp Cys Pro Ala Gly Ile Asp Val Gly Phe Ile Asn Ala Ile
210 215 220

Ala Pro Ala Gln Glu Ala Ile Ile Val Thr Thr Pro Glu Ile Thr Ala
225 230 235 240

Ile Arg Asp Ala Asp Arg Val Ala Gly Leu Leu Glu Ala Asn Thr Ile
245 250 255

Val Asp Thr Lys Leu Leu Leu Asn Arg Val Arg Met Asp Met Ile Gln
260 265 270

Asn Ser Thr Met Leu Ser Ile Met Asp Val Gln Glu Thr Leu Gly Ile
275 280 285

Pro Leu Leu Gly Ala Ile Pro Glu Asp Thr Asn Val Ile Ile Ser Thr
290 295 300

Asn Lys Gly Glu Pro Leu Val Leu Asp Lys Lys Leu Thr Leu Ser Gly

305 310 315 320

Ile Ala Phe Glu Asn Ala Ala Arg Arg Leu Ile Gly Lys Glu Asp Tyr

325 330 335

Phe Val Asp Leu Asp Ile Pro Thr Lys Ser Ile Ile Lys Lys Ile Gln

340 345 350

Lys Phe Phe Trp Gly Glu Phe

355

<210> 8

<211> 266

<212> PRT

<213> Synechocystis PCC6803

<400> 8

Met Asn Arg Ile Ile Val Val Thr Ser Gly Lys Gly Gly Val Gly Lys

1 5 10 15

Thr Thr Thr Thr Ala Asn Leu Gly Ala Ala Leu Ala Arg Leu Gly Lys

20 25 30

Lys Val Val Leu Ile Asp Ala Asp Phe Gly Leu Arg Asn Leu Asp Leu

35 40 45

Leu Leu Gly Leu Glu Gln Arg Ile Val Tyr Thr Ala Ile Asp Val Leu

50 55 60

Ala Asp Glu Cys Thr Ile Asp Lys Ala Leu Val Lys Asp Lys Arg Leu

65 70 75 80

Pro Asn Leu Val Leu Leu Pro Ala Ala Gln Asn Arg Ser Lys Asp Ala

85 90 95

Ile Asn Ala Glu Gln Met Gln Ser Leu Val Glu Gln Leu Lys Asp Lys

100 105 110

Phe Asp Tyr Ile Ile Ile Asp Cys Pro Ala Gly Ile Glu Ala Gly Phe

115	120	125	
Arg Asn Ala Val Ala Pro Ala Gln Glu Ala Ile Ile Val Thr Thr Pro			
130	135	140	
Glu Met Ser Ala Val Arg Asp Ala Asp Arg Val Ile Gly Leu Leu Glu			
145	150	155	160
Ala Glu Asp Ile Gly Lys Ile Ser Leu Ile Val Asn Arg Leu Arg Pro			
165	170	175	
Glu Met Val Gln Leu Asn Gln Met Ile Ser Val Glu Asp Ile Leu Asp			
180	185	190	
Leu Leu Ala Val Pro Leu Ile Gly Ile Leu Pro Asp Asp Gln Lys Ile			
195	200	205	
Ile Ile Ser Thr Asn Lys Gly Glu Pro Leu Val Met Glu Glu Lys Leu			
210	215	220	
Ser Val Pro Gly Leu Ala Phe Gln Asn Ile Ala Arg Arg Leu Glu Gly			
225	230	235	240
Gln Asp Ile Pro Phe Leu Asp Phe Met Ala Ala His Asn Thr Leu Leu			
245	250	255	
Asn Arg Ile Arg Arg Arg Leu Leu Gly Gly			
260	265		

<210> 9

<211> 270

<212> PRT

<213> Guillardia theta

<400> 9

Met Ala Arg Ile Val Val Ile Thr Ser Gly Lys Gly Val Gly Lys			
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Thr Thr Val Thr Ala Asn Leu Gly Met Ala Leu Ala Gln Leu Gly Tyr

20	25	30	
Arg Thr Ala Leu Ile Asp Ala Asp Ile Gly Leu Arg Asn Leu Asp Leu			
35	40	45	
Leu Leu Gly Leu Glu Asn Arg Val Ile Tyr Thr Ala Leu Glu Val Leu			
50	55	60	
Ser Gly Glu Cys Arg Leu Glu Gln Ala Leu Ile Lys Asp Lys Arg Gln			
65	70	75	80
Pro Asn Leu Val Leu Leu Pro Ala Ala Gln Asn Arg Asn Lys Asp Ser			
85	90	95	
Val Thr Glu Glu Gln Met Lys Phe Leu Val Asn Leu Leu Val Asn Lys			
100	105	110	
Asp Tyr Asp Tyr Leu Leu Ile Asp Cys Pro Ala Gly Ile Glu Thr Gly			
115	120	125	
Phe His Asn Ala Ile Gly Pro Ala Gln Glu Ala Ile Val Val Thr Thr			
130	135	140	
Pro Glu Ile Ala Ala Val Arg Asp Ala Asp Arg Val Ile Gly Leu Leu			
145	150	155	160
Glu Ala Asn Gly Ile Lys Gln Ile Lys Leu Leu Val Asn Arg Leu Arg			
165	170	175	
Pro Gln Met Val Lys Ala Asn Asp Met Met Ser Val Ala Asp Val Arg			
180	185	190	
Glu Ile Leu Ala Ile Pro Leu Ile Gly Val Ile Pro Glu Asp Glu Cys			
195	200	205	
Val Ile Val Ser Thr Asn Arg Gly Glu Pro Leu Val Leu Glu Lys Asn			
210	215	220	
Leu Ser Leu Pro Gly Leu Ala Phe Glu His Thr Ala Cys Arg Leu Asp			
225	230	235	240

Gly Gln Glu Ile Glu Phe Leu Asp Leu Gln Ser Tyr Ser Arg Gly Pro
245 250 255

Leu Lys Arg Leu Arg Arg Phe Phe Leu Gly Ser Ser Thr Asn
260 265 270

<210> 10

<211> 282

<212> PRT

<213> *Chlorella vulgaris*

<400> 10

Met Val Phe Ser Thr Gly Asn Gly Asp Asp Asn Ser Lys Gly Leu Glu
1 5 10 15

Arg Val Ile Val Ile Thr Ser Gly Lys Gly Gly Val Gly Lys Thr Thr
20 25 30

Thr Thr Ala Asn Leu Gly Met Ser Ile Ala Arg Leu Gly Tyr Arg Val
35 40 45

Ala Leu Ile Asp Ala Asp Ile Gly Leu Arg Asn Leu Asp Leu Leu Leu
50 55 60

Gly Leu Glu Asn Arg Val Leu Tyr Thr Ala Met Asp Ile Val Glu Gly
65 70 75 80

Gln Cys Arg Leu Asp Gln Ala Leu Ile Arg Asp Lys Arg Trp Lys Asn
85 90 95

Leu Ala Leu Leu Ala Ile Ser Lys Asn Arg Gln Lys Tyr Asn Val Thr
100 105 110

Arg Lys Asn Met Gln Asn Leu Ile Asp Ser Val Lys Glu Leu Gly Phe
115 120 125

Gln Phe Val Leu Ile Asp Cys Pro Ala Gly Ile Asp Val Gly Phe Ile
130 135 140

Asn Ala Ile Ala Ser Ala Gln Glu Ala Val Ile Val Thr Thr Pro Glu
145 150 155 160

Ile Thr Ala Ile Arg Asp Ala Asp Arg Val Ala Gly Leu Leu Glu Ala
 165 170 175

Asn Gly Ile Tyr Asn Val Lys Leu Leu Val Asn Arg Val Arg Pro Asp
 180 185 190

Met Ile Gln Lys Asn Asp Met Met Ser Val Arg Asp Val Gln Glu Met
 195 200 205

Leu Gly Ile Pro Leu Leu Gly Ala Ile Pro Glu Asp Thr Ser Val Ile
 210 215 220

Ile Ser Thr Asn Lys Gly Glu Pro Leu Val Leu Asn Lys Lys Leu Thr
225 230 235 240

Leu Ser Gly Ile Ala Phe Glu Asn Ala Ala Arg Arg Leu Ile Gly Lys
 245 250 255

Gln Asp Tyr Phe Ile Asp Leu Thr Ser Pro Gln Lys Gly Met Phe Gln
 260 265 270

Lys Leu Gln Glu Phe Phe Leu Gly Glu Glu
 275 280

<210> 11

<211> 274

<212> PRT

<213> *Nephroselmis olivacea*

<400> 11

Met Thr Met Gln Asp Lys Glu Pro Ser Ala Pro Ala Cys Arg Val Ile
1 5 10 15

Val Ile Thr Ser Gly Lys Gly Gly Val Gly Lys Thr Thr Ala Thr Ala
 20 25 30

Asn Leu Gly Met Cys Ile Ala Arg Leu Gly Tyr Arg Val Ala Leu Ile
35 40 45

Asp Ala Asp Ile Gly Leu Arg Asn Leu Asp Leu Leu Leu Gly Leu Glu
50 55 60

Asn Arg Val Val Tyr Thr Ala Met Glu Val Ile Glu Gly Gln Cys Arg
65 70 75 80

Leu Glu Gln Ala Leu Ile Arg Asp Lys Arg Trp Lys Asn Leu Ser Met
85 90 95

Leu Ala Met Ser Lys Asn Arg Gln Arg Tyr Asn Met Thr Arg Lys Asn
100 105 110

Met Met Met Ile Val Asp Ser Ile Lys Glu Arg Gly Tyr Gln Tyr Ile
115 120 125

Leu Ile Asp Cys Pro Ala Gly Ile Asp Ala Gly Phe Val Asn Ala Ile
130 135 140

Ala Pro Ala Asp Glu Ala Ile Leu Val Thr Thr Pro Glu Ile Thr Ala
145 150 155 160

Ile Arg Asp Ala Asp Arg Val Ala Gly Leu Leu Glu Ala Asn Asp Phe
165 170 175

Tyr Asn Val Arg Leu Val Ala Asn Arg Val Arg Pro Glu Met Ile Gln
180 185 190

Gln Asn Asp Met Met Ser Val Asp Asp Val Gln Gly Met Ile Gly Val
195 200 205

Pro Leu Leu Gly Ala Ile Pro Glu Asp Lys Asn Val Ile Ile Ser Thr
210 215 220

Asn Arg Gly Glu Pro Leu Val Cys Gln Lys Thr Ile Thr Leu Ala Gly
225 230 235 240

Val Ala Phe Glu Glu Ala Ala Arg Arg Leu Val Gly Leu Pro Ser Pro
245 250 255

Ser Asp Ser Ala Pro Ser Arg Gly Trp Phe Ala Ala Ile Arg Arg Leu
260 265 270

Trp Ser

<210> 12

<211> 162

<212> PRT

<213> Oryza sativa

<400> 12

Met Ala Phe Ala Pro Arg Leu Leu Leu Pro Ser Arg Cys Pro Pro Pro
1 5 10 15

Ala Ser Ser Pro Ala Arg His Gly Gly Arg Thr Ala Pro Glu Leu Ser
20 25 30

Gly Pro Thr Pro Arg Val Val Val Val Thr Ser Gly Lys Gly Gly Val
35 40 45

Gly Lys Thr Thr Thr Thr Ala Asn Leu Ala Ala Ser Leu Ala Arg Leu
50 55 60

Ser Leu Ser Ala Val Ala Val Asp Ala Asp Ala Gly Leu Arg Asn Leu
65 70 75 80

Asp Leu Leu Leu Gly Leu Glu Asn Arg Val His Leu Thr Ala Ala Asp
85 90 95

Val Leu Ala Gly Asp Cys Arg Leu Asp Gln Ala Leu Val Arg His Arg
100 105 110

Ala Leu His Asp Leu Gln Leu Leu Cys Leu Ser Lys Pro Arg Ser Lys
115 120 125

Leu Pro Leu Ala Phe Gly Ser Lys Thr Leu Thr Trp Val Ala Asp Ala

130

135

140

Leu Arg Arg Ala Ala Asn Pro Pro Ala Phe Ile Leu Ile Asp Cys Pro

145

150

155

160

Ala Gly